

FORM PTO-1390 (Modified) (REV 11-2000)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER 112740-550	
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR) 10/088763	
INTERNATIONAL APPLICATION NO. PCT/DE00/03259		INTERNATIONAL FILING DATE 19 September 2000		PRIORITY DATE CLAIMED 23 September 1999	
TITLE OF INVENTION INTERNET TELEPHONE ADAPTER					
APPLICANT(S) FOR DO/EO/US Josef Baumeister et al.					
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:					
<ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371. 3. <input checked="" type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below. 4. <input checked="" type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (Article 31). 5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371 (c) (2)) <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> is attached hereto (required only if not communicated by the International Bureau). b. <input type="checkbox"/> has been communicated by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input checked="" type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)). <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> is attached hereto. b. <input type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4). 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3)) <ol style="list-style-type: none"> a. <input type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau). b. <input type="checkbox"/> have been communicated by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input checked="" type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)). 10. <input type="checkbox"/> An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)). 11. <input checked="" type="checkbox"/> A copy of the International Preliminary Examination Report (PCT/IPEA/409). 12. <input checked="" type="checkbox"/> A copy of the International Search Report (PCT/ISA/210). 					
Items 13 to 20 below concern document(s) or information included:					
<ol style="list-style-type: none"> 13. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 14. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 15. <input checked="" type="checkbox"/> A FIRST preliminary amendment. 16. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment. 17. <input checked="" type="checkbox"/> A substitute specification. 18. <input type="checkbox"/> A change of power of attorney and/or address letter. 19. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825. 20. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4). 21. <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4). 22. <input checked="" type="checkbox"/> Certificate of Mailing by Express Mail 23. <input type="checkbox"/> Other items or information: 					

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

INTERNATIONAL APPLICATION NO. (IF KNOWN, SEE 37 CFR 1.492)

ATTORNEY'S DOCKET NUMBER

70/088763

PCT/DE00/03259

112740-550

24. The following fees are submitted:

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :

- ☐ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$1040.00
- ☒ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$890.00
- ☐ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$740.00
- ☐ International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$710.00
- ☐ International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) \$100.00

ENTER APPROPRIATE BASIC FEE AMOUNT =**\$890.00**Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).**\$0.00**

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE
Total claims	13 - 20 =	0	x \$18.00
Independent claims	1 - 3 =	0	x \$84.00
Multiple Dependent Claims (check if applicable).			<input type="checkbox"/>

\$0.00**\$0.00****\$0.00****TOTAL OF ABOVE CALCULATIONS =****\$890.00**

- ☐ Applicant claims small entity status. See 37 CFR 1.27). The fees indicated above are reduced by 1/2.

\$0.00**SUBTOTAL =****\$890.00**Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).**\$0.00****TOTAL NATIONAL FEE =****\$890.00**

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable).

☐**\$0.00****TOTAL FEES ENCLOSED =****\$890.00**

Amount to be:	\$
refunded	
charged	\$

- a. ☒ A check in the amount of **\$890.00** to cover the above fees is enclosed.
- b. ☐ Please charge my Deposit Account No. _____ in the amount of _____ to cover the above fees. A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **02-1818**. A duplicate copy of this sheet is enclosed.
- d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

William E. Vaughan (Reg. No. 39,056)
Bell, Boyd & Lloyd LLC
P.O. Box 1135
Chicago, Illinois 60690
312-807-4292

SIGNATURE

William E. Vaughan

NAME

39,056

REGISTRATION NUMBER

March 20, 2002

DATE

BOX PCT

IN THE UNITED STATES ELECTED/DESIGNATED OFFICE
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

5

PRELIMINARY AMENDMENT

APPLICANTS: Josef Baumeister et al. DOCKET NO.: 112740-550
SERIAL NO: GROUP ART UNIT:
FILED: EXAMINER:
INTERNATIONAL APPLICATION NO.: PCT/DE00/03259
INTERNATIONAL FILING DATE 19 September 2000
INVENTION: INTERNET TELEPHONE ADAPTER

Assistant Commissioner for Patents,
Washington, D.C. 20231

10

Sir:

Please amend the above-identified International Application before entry into the National stage before the U.S. Patent and Trademark Office under 35 U.S.C. §371 as follows:

15

In the Specification:

Please replace the Specification of the present application, including the Abstract, with the following Substitute Specification:

SPECIFICATION

TITLE OF THE INVENTION

5

INTERNET TELEPHONE ADAPTER

BACKGROUND OF THE INVENTION

The present invention relates to an Internet telephone adapter for setting up voice/data links in line-switching networks and packet-switching networks and, in particular, to an Internet telephone adapter for cordless applications.

10

The volume of voice and data links in communications networks using subscriber terminals, such as telephones, mobiles and computer units (PC), is growing at a great rate both in the business sector and in the private sector. For this continuously growing communication volume, incredible sums of money are spent every year both in the business sector and in the private sector.

15

Voice links normally have been set up over "line-switching networks," where a direct (point-to-point) link, as it were, has been set up between the call parties. By contrast, for the data traffic, "data networks" have been used which, as packet-switching networks, packaged the data to be transferred into individual packets and sent them to a receiver via a wide variety of paths. Particularly as a result of the aggregation of a multiplicity of packet-switching networks in the "Internet," a worldwide packet-switching network has been created which can be used to transfer data, particularly in a relatively inexpensive manner.

20

To utilize this great difference in cost between line-switching networks and packet-switching networks, the company Vocaltec has proposed the "Internet phone," which also permits a voice link over a packet-switching network, such as the Internet. Figure 3 shows a simplified illustration of such an Internet phone configuration in which a voice link between two subscribers is set up over a packet-switching network 1.

25

In Figure 3, a subscriber terminal TE(A) includes a computer unit PC (personal computer) which has a sound card (not shown) with a connected loudspeaker LA and a microphone MI. The computer unit PC also has a subscriber access adapter (e.g., modem), which is not shown but which is connected to a service provider 2a (SP) via a

30

subscriber line TL. In this case, the service provider 2a, as a node in a packet-switching bidirectional communications network 1, such as the Internet, provides access to this network.

In the same way, a second call party has a subscriber terminal TE(B) having a computer unit PC and an associated sound card with a connected microphone MI and a loudspeaker LA, the computer unit PC again setting up a connection to a service provider 2b (SP), preferably via a subscriber access adapter in the form of a modem. The service provider 2b again has an access facility to the packet-switching bidirectional communications network 1.

To set up a voice link between the subscriber terminal TE(A) and the subscriber terminal TE(B) over the packet-switching network 1, the computer units PC in question are operated using a program (e.g., from Vocaltec) wherein the voice data recorded by the respective microphone are transferred, packaged into small packets, over the packet-switching network 1 and are assembled at the receiver end such that a continuous voice signal is, in turn, obtained at the loudspeaker LA. In this way, it is possible to set up an extremely inexpensive voice link throughout the world over the Internet, for example.

However, a drawback of a such a solution is that it is not possible to use conventional telephones and, hence, a connection can be set up only between two Internet telephones having appropriate computer units PC.

The document WO 98/42104 has, therefore, disclosed a system and a method for setting up a voice link over both a packet-switching network and a line-switching network which now also allow "Internet telephones" to be connected to "normal telephones." In this context, however, the Internet telephones still include a computer-assisted system with a microphone and a loudspeaker and a specifically aligned local service provider for coupling both the line-switching data and the packet-switching data.

The document US 5,838,665 describes another adapter apparatus which can be used to couple the Internet telephone systems described above to conventional telephones. In this context, connecting a normal telephone to an "Internet telephone system" makes it possible to provide, by way of example, multiparty services, etc., between the different systems. However, a drawback with this system is that a

computer assisted terminal unit (PC) still produces the "Internet telephone," which is why it is rejected by a large number of users.

The present invention is, therefore, directed toward providing an Internet telephone adapter for setting up voice/data links in line-switching networks and packet-switching networks which is both inexpensive and user friendly.

SUMMARY OF THE INVENTION

Pursuant to the present invention, use is made of a base unit having a transfer method evaluation unit which, on the basis of the type of voice/data link identified, performs data conversion between the data on a subscriber terminal interface and the packet-switching network or the line-switching network results in an Internet telephone adapter which is extremely simple to use and, without using a complicated computer system (PC), turns any conventional subscriber terminal into a terminal which allows a voice/data link both over line-switching networks and over packet-switching networks.

Preferably, the subscriber terminal interface includes a DECT interface based on the ETSI standard, and the standard data interface includes a serial V.24 interface based on the ITU standard. Such an embodiment already has been implemented, by way of example, in the Gigaset M101 data terminal from the company Siemens, which allows conventional cordless telephones to be converted into cordless Internet telephones via a slight modification to the base station operating as base unit. In this context, the subscriber access adapter used preferably can be an analog voice modem or a digital ISDN access adapter.

Preferably, the data conversion in the base unit for a connection over the packet-switching network involves performing TCP/IP data protection, which results in an alignment with the Internet.

Particularly when a cordless application is used, the data conversion involves converting the received voice/data information from a DECT-GAP standard to the Voice-Over-IP protocol and vice versa.

Additional features and advantages of the present invention are described in, and will be apparent from, the following Detailed Description of the Invention and the Figures.

BRIEF DESCRIPTION OF THE FIGURES

Figure 1 shows a simplified illustration of an Internet telephone system with an inventive Internet telephone adapter.

Figure 2 shows a schematic illustration of a protocol structure for the system
5 shown in Figure 1.

Figure 3 shows a simplified illustration of an Internet telephone system based on the prior art.

DETAILED DESCRIPTION OF THE INVENTION

Figure 1 shows a simplified illustration of an Internet telephone system for
10 setting up a voice/data link over a line-switching network 1' or a packet-switching network 1. In Figure 1, a subscriber terminal TE is connected via a subscriber terminal interface LS to the Internet telephone adapter ITA, which is itself connected to a service provider 2 (SP) via a subscriber line TL. In Figure 1, the service provider 2 allows connection both to a packet-switching network 1, which preferably includes the
15 Internet, or to a line-switching network 1', which preferably includes a public telephone network (Public Switched Telephone Network, PSTN).

As has already been described above, voice and data are packaged into packets in the packet-switching network 1 and are sent to the network 1 using a destination address. When they have arrived at the destination address, the individual packets are
20 assembled again according to their prescribed order and are output on a subscriber (not shown). By contrast, in the line-switching network 1', a direct connection is set up between the respective subscribers, and the information is transferred in the form of voice or data.

The Internet telephone adapter ITA essentially includes a base unit B which is
25 connected to a subscriber access adapter VM via a standard data interface V.24.

In the preferred exemplary embodiment shown in Figure 1, the subscriber terminal TE includes a cordless telephone for setting up an air interface LS based on the ETSI standard DECT. Since such a subscriber terminal TE is able to transmit only voice, the air interface LS is based on the DECT-GAP standard. At the opposite end,
30 the air interface LS shown in Figure 1 is set up by a base station which acts as a base unit B and preferably corresponds essentially to the cordless GIGASET M101 data terminal from Siemens. Such a base unit essentially includes an air interface unit LE

for setting up the air interface LS, a data interface unit SS for setting up the standard data interface V.24, and a control unit SE which controls both the air interface unit LE and the data interface unit SS. Preferably, the standard data interface V.24 used is a serial interface based on ITU-V.24 standard. It is also possible to use any other interface, however, such as parallel interfaces, USB, fire wire, etc.

On the standard data interface V.24, the subscriber access adapter VM is connected in order to set up a connection to the service provider 2 (SP). Preferably, the subscriber access adapter VM includes an “analog voice modem,” which permits the transfer of information both in a data format using a modem M or in a voice format using a digital/analog converter unit V (voice). In this context, the respective transfer is selected via a selection unit AE, which preferably can be programmed with the aid of standardized AT-Hayes commands using the standard data interface V.24.

To set up an “Internet voice/data link,” it is necessary for a multiplicity of functions, preferably performed by the control unit SE, to be implemented in the base unit B. Particularly when the data terminal GIGASET M101 is used, the inventive Internet telephone adapter ITA can be produced by slightly modifying (software, firmware) the base unit B and using a conventional voice modem VM. In this context, the control unit SE in the base unit B needs to implement a dialing evaluation unit which makes it possible to distinguish a normal voice/data link (i.e., a link over the line-switching network 1’), from an Internet voice/data link (i.e., a link over the packet-switching network 1). For this purpose, a number plan is designed, for example, which makes it possible to make this distinction using currently available dialing digits (such as 0 to 9, *, #).

In the case of an Internet voice/data link initiated with “#,” for example, a selection to be produced by the base unit B includes the IP address (IP, Internet protocol) of the required call party. In this case, the base unit B also uses the standard data interface V.24 to select a modem mode on the voice modem, as a result of which the information is sent in the data format via the modem M to the service provider 2 with the IP address produced.

If, on the other hand, a normal voice/data link is to be set up (e.g., a normal telephone number is dialed without “#” in front), then the base unit B needs to actuate the selection unit AE in the voice modem VM such that the converter unit V is

selected and the voice data are forwarded transparently, as it were, to the service provider 2. Since there is no IP address in this case, the service provider 2 would set up the link over the network 1'.

In another case (not shown), the air interface LS also can be used to connect a data subscriber terminal which transmits exclusively data. These data are, in turn, transmitted by the voice modem VM using the modem M, but with no IP address being added. The IP address now can be used by the service provider 2 to establish whether transmission is to be produced using the packet-switching network 1 (i.e., over the Internet), or a conventional connection over the line-switching network 1'.

To set up an Internet voice/data link, however, it is not yet sufficient to add an IP address on the basis of the evaluated dialing digits from the subscriber terminal TE. Instead, the base unit B needs to set up data conversion between the air interface LS and the protocol required for the packet-switching network 1.

Figure 2 shows a schematic illustration of a protocol structure for the Internet telephone system shown in Figure 1. Figure 2 describes the protocol structure for the preferred exemplary embodiment including a DECT-GAP mobile part or subscriber terminal TE and an AT-Hayes voice modem VM connected via a serial V.24 interface. Accordingly, a DECT-GAP protocol is used between subscriber terminal TE and base unit B on the air interface LS. The control unit SE in the base unit B implements a data conversion unit IWU (interworking unit) whose task is to connect the different protocol domains to one another. More precisely, the data conversion unit IWU in the base unit B monitors connection setup on the air interface side using its associated DECT-GAP protocol, with setup of a connection being accepted and the dialing which comes from the cordless subscriber terminal TE (i.e., the dialing digits 0 to 9, *, #, etc.), being evaluated. When an Internet voice/data link is identified (e.g., “#” in front), the base unit B switches the voice modem VM to modem mode, and the modem M is prompted to dial up the service provider 2. Once the connection has been set up, the data sent by the air interface LS are converted on the basis of the Voice-Over-IP protocol and are sent, protected via TCP/IP data protection (transfer control protocol/Internet protocol), to the IP address obtained in the dialing.

Particularly when the subscriber access adapter VM includes a voice modem, it is possible to set up not only the Internet/data link but also a normal voice/data link

without departing from the spirit and scope of the present invention as set forth in the hereafter appended claims.

ABSTRACT OF THE DISCLOSURE

5 An Internet telephone adapter for setting up voice/data links, where a data conversion unit for data conversion between a subscriber terminal interface and a subscriber access adapter interface allows connection both to a packet-switching communications network and to a line-switching communications network.

In the claims:

On page 11, cancel line 1, and substitute the following left-hand justified heading therefor:

CLAIMS

5 Please cancel claims 1-13, without prejudice, and substitute the following claims therefor:

14. An Internet telephone adapter for setting up voice/data links in line-switching networks and packet-switching networks, comprising:

a base unit for setting up a subscriber terminal interface and a standard data
10 interface;

a subscriber access adapter for connecting the base unit to a service provider for the line-switching networks and the packet-switching networks; and

a transfer method evaluation unit in the base unit which, based on a type of voice/data link identified, performs data conversion between the data on the subscriber
15 terminal interface and the respective packet-switching network and line-switching network.

15. An Internet telephone adapter for setting up voice/data links in line-switching networks and packet-switching networks as claimed in claim 14, wherein
20 the subscriber terminal interface is an air interface and the standard data interface is a serial interface.

16. An Internet telephone adapter for setting up voice/data links in line-switching networks and packet-switching networks as claimed in claim 15, wherein
25 the air interface is one of a DECT interface and a GSM interface standardized on the basis of ETSI, and the serial interface is one of a V.24 interface and a USB interface standardized on the basis of ITU.

17. An Internet telephone adapter for setting up voice/data links in line-switching networks and packet-switching networks as claimed in claim 15, wherein
30 the air interface is one of a Bluetooth interface and a PHS interface.

18. An Internet telephone adapter for setting up voice/data links in line-switching networks and packet-switching networks as claimed in claim 14, wherein the subscriber access adapter has one of an analog voice modem and a digital ISDN adapter.

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19. An Internet telephone adapter for setting up voice/data links in line-switching networks and packet-switching networks as claimed in claim 18, wherein the subscriber access adapter has a selection unit for selecting data transfer in one of a data format and a voice format.

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20. An Internet telephone adapter for setting up voice/data links in line-switching networks and packet-switching networks as claimed in claim 14, wherein, for an outgoing call, the base unit actuates the subscriber access adapter and, for an incoming call, the subscriber access adapter actuates the base unit for a type of voice/data link.

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21. An Internet telephone adapter for setting up voice/data links in line-switching networks and packet-switching networks as claimed in claim 14, wherein the base unit produces an IP address for a required call party when a voice/data link is identified for a packet-switching network.

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22. An Internet telephone adapter for setting up voice/data links in line-switching networks and packet-switching networks as claimed in claim 14, wherein the data conversion in the transfer method evaluation unit for the packet-switching network includes TCP/IP data protection.

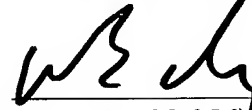
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23. An Internet telephone adapter for setting up voice/data links in line-switching networks and packet-switching networks as claimed in claim 14, wherein the data conversion in the transfer method evaluation unit for the packet-switching network includes a Voice-Over-IP protocol.

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Early consideration on the merits is respectfully requested.

Respectfully submitted,



(Reg. No. 39,056)

William E. Vaughan

Bell, Boyd & Lloyd LLC

P.O. Box 1135

Chicago, Illinois 60690-1135

(312) 807-4292

Attorneys for Applicants

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VERSIONS WITH MARKINGS TO SHOW CHANGES MADE

In The Specification:

The Specification of the present application, including the Abstract, has been amended as follows:

5

SPECIFICATION

TITLE OF THE INVENTION

INTERNET TELEPHONE ADAPTER

BACKGROUND OF THE INVENTION

10 Description

Internet telephone adapter

15 The present invention relates to an Internet telephone adapter for setting up voice/data links in line-switching networks and packet-switching networks and, in particular, to an Internet telephone adapter for cordless applications.

The volume of voice and data links in communications networks using subscriber terminals, such as telephones, mobiles and computer units (PC), is growing at a great rate both in the business sector and in the private sector. For this
20 continuously growing communication volume, incredible sums of money are spent every year both in the business sector and in the private sector.

Voice links ~~have~~ normally have been set up over "line-switching networks," where a direct (point-to-point) link, as it were, has been set up between the call parties. By contrast, for the data traffic, "data networks" have been used which, as packet-switching networks, packaged the data to be transferred into individual packets and
25 sent them to a receiver via a wide variety of paths. Particularly as a result of the aggregation of a multiplicity of packet-switching networks in the "Internet," a worldwide packet-switching network has been created which can be used to transfer data, ~~in particular, in a particularly~~ in a relatively inexpensive manner.

30 To utilize this great difference in cost between line-switching networks and packet-switching networks, the company Vocaltec has proposed the "Internet phone," which also permits a voice link over a packet-switching network, such as the Internet. Figure 3 shows a simplified illustration of such an Internet phone configuration in

which a voice link between two subscribers is set up over a packet-switching network 1.

In Figure 3, a subscriber terminal TE(A) ~~comprises~~ includes a computer unit PC (personal computer) which has a sound card (not shown) with a connected
 5 loudspeaker LA and a microphone MI. The computer unit PC also has a subscriber access adapter (e.g., modem), which is not shown but which is connected to a service provider 2a (SP) via a subscriber line TL. In this case, the service provider 2a, as a node in a packet-switching bidirectional communications network 1, such as the Internet, provides access to this network.

10 In the same way, a second call party has a subscriber terminal TE(B) having a computer unit PC and an associated sound card with a connected microphone MI and a loudspeaker LA, the computer unit PC again setting up a connection to a service provider 2b (SP), preferably via a subscriber access adapter in the form of a modem. The service provider 2b again has an access facility to the packet-switching
 15 bidirectional communications network 1.

To set up a voice link between the subscriber terminal TE(A) and the subscriber terminal TE(B) over the packet-switching network 1, the computer units PC in question are operated using a program (e.g., from Vocaltec) ~~which is such that~~
 20 wherein the voice data recorded by the respective microphone are transferred, packaged into small packets, over the packet-switching network 1 and are assembled at the receiver end such that a continuous voice signal is, in turn, obtained at the loudspeaker LA. In this way, it is possible to set up an extremely inexpensive voice link throughout the world over the Internet, for example.

However, a drawback of a such a solution is that it is not possible to use
 25 conventional telephones; and, hence, a connection can be set up only between two Internet telephones having appropriate computer units PC.

The document WO 98/42104 has, therefore, disclosed a system and a method for setting up a voice link over both a packet-switching network and a line-switching network which now also allow "Internet telephones" to be connected to "normal
 30 telephones." In this context, however, the Internet telephones still ~~comprise~~ include a computer-assisted system with a microphone and a loudspeaker and a specifically

aligned local service provider for coupling both the line-switching data and the packet-switching data.

The document US 5,838,665 describes another adapter apparatus which can be used to couple the Internet telephone systems described above to conventional
5 telephones. In this context, connecting a normal telephone to an "Internet telephone system" makes it possible to provide, by way of example, multiparty services, etc., between the different systems. However, a drawback with this system, too, is that a computer assisted terminal unit (PC) still produces the "Internet telephone," which is why it is rejected by a large number of users.

10 The present invention is, therefore, based ~~on the object of directed toward~~ providing an Internet telephone adapter for setting up voice/data links in line-switching networks and packet-switching networks which is both inexpensive and user friendly. ~~The invention achieves this object by means of the features of patent claim 1.~~

15 SUMMARY OF THE INVENTION

~~Particularly the use~~ Pursuant to the present invention, use is made of a base unit having a transfer method evaluation unit which, on the basis of the type of voice/data link identified, performs data conversion between the data on a subscriber terminal interface and the packet-switching network or the line-switching network results in an
20 Internet telephone adapter which is extremely simple to use and, without using a complicated computer system (PC), turns any conventional subscriber terminal into a terminal which allows a voice/data link both over line-switching networks and over packet-switching networks.

Preferably, the subscriber terminal interface ~~comprises~~ includes a DECT
25 interface based on the ETSI standard, and the standard data interface ~~comprises~~ includes a serial V.24 interface based on the ITU standard. Such an embodiment has already has been implemented, by way of example, in the Gigaset M101 data terminal from the company Siemens, which allows conventional cordless telephones to be converted into cordless Internet telephones ~~by means of~~ via a slight modification to the
30 base station operating as base unit. In this context, the subscriber access adapter used ~~can preferably~~ can be an analog voice modem or a digital ISDN access adapter.

Preferably, the data conversion in the base unit for a connection over the packet-switching network involves performing TCP/IP data protection, which results in an alignment with the Internet.

Particularly when a cordless application is used, the data conversion involves
5 converting the received voice/data information from a DECT-GAP standard to the Voice-Over-IP protocol and vice versa.

Additional features and advantages of the present invention are described in, and will be apparent from, the following Detailed Description of the Invention and the Figures.

10 BRIEF DESCRIPTION OF THE FIGURES

~~The further subclaims identify further advantageous refinements of the invention.~~

~~The invention is described in more detail below using an exemplary embodiment with reference to the drawing, in which:~~

15 ~~f~~Figure 1 shows a simplified illustration of an Internet telephone system with an inventive Internet telephone adapter;

~~f~~Figure 2 shows a schematic illustration of a protocol structure for the system shown in ~~f~~Figure 1; and

20 ~~f~~Figure 3 shows a simplified illustration of an Internet telephone system based on the prior art.

DETAILED DESCRIPTION OF THE INVENTION

Figure 1 shows a simplified illustration of an Internet telephone system for setting up a voice/data link over a line-switching network 1' or a packet-switching
25 network 1. In ~~f~~Figure 1, a subscriber terminal TE is connected via a subscriber terminal interface LS to the Internet telephone adapter ITA, which is itself connected to a service provider 2 (SP) via a subscriber line TL. In ~~f~~Figure 1, the service provider 2 allows connection both to a packet-switching network 1, which preferably ~~comprises~~
includes the Internet, or to a line-switching network 1', which preferably ~~comprises~~
30 includes a public telephone network (Public Switched Telephone Network, PSTN).

As has already been described above, voice and data are packaged into packets in the packet-switching network 1 and are sent to the network 1 using a destination address. When they have arrived at the destination address, the individual packets are

assembled again according to their prescribed order and are output on a subscriber (not shown). By contrast, in the line-switching network 1', a direct connection is set up between the respective subscribers, and the information is transferred in the form of voice or data.

5 The Internet telephone adapter ITA essentially ~~comprises~~ includes a base unit B which is connected to a subscriber access adapter VM via a standard data interface V.24.

 In the preferred exemplary embodiment shown in ~~the~~ Figure 1, the subscriber terminal TE ~~comprises~~ includes a cordless telephone for setting up an air interface LS
10 based on the ETSI standard DECT. Since such a subscriber terminal TE is able to transmit only voice, the air interface LS is based on the DECT-GAP standard. At the opposite end, the air interface LS shown in ~~the~~ Figure 1 is set up by a base station which acts as a base unit B and preferably corresponds essentially to the cordless GIGASET M101 data terminal from Siemens. Such a base unit essentially ~~comprises~~ includes an
15 air interface unit LE for setting up the air interface LS, a data interface unit SS for setting up the standard data interface V.24, and a control unit SE which controls both the air interface unit LE and the data interface unit SS. Preferably, the standard data interface V.24 used is a serial interface based on ITU-V.24 standard. It is also possible to use any other interface, however, such as parallel interfaces, USB, fire wire, etc.

20 On the standard data interface V.24, the subscriber access adapter VM is connected in order to set up a connection to the service provider 2 (SP). Preferably, the subscriber access adapter VM ~~comprises~~ includes an "analog voice modem," which permits the transfer of information both in a data format using a modem M or in a voice format using a digital/analog converter unit V (voice). In this context, the
25 respective transfer is selected ~~by means of~~ via a selection unit AE, which ~~can~~ preferably can be programmed with the aid of standardized AT-Hayes commands using the standard data interface V.24.

 To set up an "Internet voice/data link," it is necessary for a multiplicity of functions, preferably performed by the control unit SE, to be implemented in the base
30 unit B. Particularly when the data terminal GIGASET M101 is used, the inventive Internet telephone adapter ITA can be produced by slightly modifying (software, firmware) the base unit B and using a conventional voice modem VM. In this context,

subscriber terminal TE and an AT-Hayes voice modem VM connected via a serial V.24 interface. Accordingly, a DECT-GAP protocol is used between subscriber terminal TE and base unit B on the air interface LS. The control unit SE in the base unit B implements a data conversion unit IWU (interworking unit) whose task is to connect the different protocol domains to one another. More precisely, the data conversion unit IWU in the base unit B monitors connection setup on the air interface side using its associated DECT-GAP protocol, with setup of a connection being accepted and the dialing which comes from the cordless subscriber terminal TE; (i.e., the dialing digits 0 to 9, *, #, etc.), being evaluated. When an Internet voice/data link is identified (e.g., “#” in front), the base unit B switches the voice modem VM to modem mode, and the modem M is prompted to dial up the service provider 2. Once the connection has been set up, the data sent by the air interface LS are converted on the basis of the Voice-Over-IP protocol and are sent, protected by means of via TCP/IP data protection (transfer control protocol/Internet protocol), to the IP address obtained in the dialing.

Particularly when the subscriber access adapter VM ~~comprises~~ includes a voice modem, it is possible to set up not only the Internet/data link but also a normal voice/data link over the line-switching network 1'. In this case, for example when the dialing digit “#” is not included, the Internet protocols (TCP/IP, Voice-Over-IP protocol) are avoided by the data conversion unit IWU and the number, or dialing digits, received from the cordless subscriber terminal TE are forwarded to the voice modem VM using AT-Hayes commands, for example, in order to prompt the voice modem VM to dial this number. In this case, the information sent by the subscriber terminal TE is forwarded as voice data by the service provider 2 over the line-switching network 1'.

In order, on the other hand, to be able to receive an incoming internal voice/data link, the Internet telephone adapter ITA naturally needs to be “online.” For this purpose, the service provider 2 can provide certain services which allow not only dialing into the Internet or packet-switching network 1, but also calling from the packet-switching network 1.

In this way, the subscriber terminal TE can also can ~~constantly~~ be reached constantly via an Internet/data link.

ABSTRACT OF THE DISCLOSURE

~~Abstract~~

5 ~~Internet telephone adapter~~

~~The invention relates to a~~An Internet telephone adapter (ITA) for setting up voice/data links, where a data conversion unit (~~IWU~~) for data conversion between a subscriber terminal interface (~~LS~~) and a subscriber access adapter interface (~~V.24~~)
10 allows connection both to a packet-switching communications network and to a line-switching communications network.

~~Figure 2~~

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Description

Internet telephone adapter

- 5 The present invention relates to an Internet telephone adapter for setting up voice/data links in line-switching networks and packet-switching networks and, in particular, to an Internet telephone adapter for cordless applications.
- 10 The volume of voice and data links in communications networks using subscriber terminals, such as telephones, mobiles and computer units (PC), is growing at a great rate both in the business sector and in the
- 15 private sector. For this continuously growing communication volume, incredible sums of money are spent every year both in the business sector and in the private sector.
- 20 Voice links have normally been set up over "line-switching networks", where a direct (point-to-point) link, as it were, has been set up between the call parties. By contrast, for the data traffic, "data
- 25 networks" have been used which, as packet-switching networks, packaged the data to be transferred into individual packets and sent them to a receiver via a wide variety of paths. Particularly as a result of the aggregation of a multiplicity of packet-switching
- 30 switching network has been created which can be used to transfer data, in particular, in a particularly inexpensive manner.
- 35 To utilize this great difference in cost between line-switching networks and packet-switching networks, the company Vocaltec has proposed the "Internet phone", which also permits a voice link over a packet-switching network, such as the Internet. Figure

3 shows a simplified illustration of such an Internet phone configuration in which a voice link between two subscribers is set up over a packet-switching network 1.

5 In figure 3, a subscriber terminal TE(A) comprises a computer unit PC (personal computer) which has a sound card (not shown) with a connected loudspeaker LA and a microphone MI. The computer unit PC also has a
10 subscriber access adapter (e.g. modem), which is not shown but which is connected to a service provider 2a (SP) via a subscriber line TL. In this case, the service provider 2a, as a node in a packet-switching bidirectional communications network 1, such as the
15 Internet, provides access to this network.

In the same way, a second call party has a subscriber terminal TE(B) having a computer unit PC and an associated sound card with a connected microphone MI
20 and a loudspeaker LA, the computer unit PC again setting up a connection to a service provider 2b (SP), preferably via a subscriber access adapter in the form of a modem. The service provider 2b again has an access facility to the packet-switching bidirectional
25 communications network 1.

To set up a voice link between the subscriber terminal TE(A) and the subscriber terminal TE(B) over the packet-switching network 1, the computer units PC in
30 question are operated using a program (e.g. from Vocaltec) which is such that the voice data recorded by the respective microphone are transferred, packaged into small packets, over the packet-switching network 1 and are assembled at the receiver end such that a
35 continuous voice signal is in turn obtained at the loudspeaker LA. In this

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way, it is possible to set up an extremely inexpensive voice link throughout the world over the Internet, for example.

5 However, a drawback of a such a solution is that it is not possible to use conventional telephones, and hence a connection can be set up only between two Internet telephones having appropriate computer units PC.

10 The document WO 98/42104 has therefore disclosed a system and a method for setting up a voice link over both a packet-switching network and a line-switching network which now also allow "Internet telephones" to be connected to "normal telephones". In this context,
15 however, the Internet telephones still comprise a computer-assisted system with a microphone and a loudspeaker and a specifically aligned local service provider for coupling both the line-switching data and the packet-switching data.

20 The document US 5,838,665 describes another adapter apparatus which can be used to couple the Internet telephone systems described above to conventional telephones. In this context, connecting a normal
25 telephone to an "Internet telephone system" makes it possible to provide, by way of example, multiparty services etc. between the different systems. However, a drawback with this system, too, is that a computer assisted terminal unit (PC) still produces the
30 "Internet telephone", which is why it is rejected by a large number of users.

The invention is therefore based on the object of providing an Internet telephone adapter for setting up
35 voice/data links in line-switching networks and packet-switching networks which is both inexpensive and user friendly.

The invention achieves this object by means of the features of patent claim 1.

Particularly the use of a base unit having a transfer
5 method evaluation unit which, on the basis of the type
of voice/data link identified, performs data conversion
between the data on a subscriber terminal interface and
the packet-switching network or the line-switching
network results in an Internet telephone adapter which
10 is extremely simple to use and, without using a
complicated computer system (PC), turns any
conventional subscriber terminal into a terminal which
allows a voice/data link both over line-switching
networks and over packet-switching networks.

15 Preferably, the subscriber terminal interface comprises
a DECT interface based on the ETSI standard, and the
standard data interface comprises a serial V.24
interface based on the ITU standard. Such an embodiment
20 has already been implemented, by way of example, in the
Gigaset M101 data terminal from the company Siemens,
which allows conventional cordless telephones to be
converted into cordless Internet telephones by means of
a slight modification to the base station operating as
25 base unit. In this context, the subscriber access
adapter used can preferably be an analog voice modem or
a digital ISDN access adapter.

Preferably, the data conversion in the base unit for a
30 connection over the packet-switching network involves
performing TCP/IP data protection, which results in an
alignment with the Internet.

Particularly when a cordless application is used, the
35 data conversion involves converting the received
voice/data information from a DECT-GAP standard to the
Voice-Over-IP protocol and vice versa.

The further subclaims identify further advantageous refinements of the invention.

5 The invention is described in more detail below using an exemplary embodiment with reference to the drawing, in which:

10 figure 1 shows a simplified illustration of an Internet telephone system with an inventive Internet telephone adapter;

figure 2 shows a schematic illustration of a protocol structure for the system shown in figure 1; and

15 figure 3 shows a simplified illustration of an Internet telephone system based on the prior art.

20 Figure 1 shows a simplified illustration of an Internet telephone system for setting up a voice/data link over a line-switching network 1' or a packet-switching network 1. In figure 1, a subscriber terminal TE is connected via a subscriber terminal interface LS to the
25 Internet telephone adapter ITA, which is itself connected to a service provider 2 (SP) via a subscriber line TL. In figure 1, the service provider 2 allows connection both to a packet-switching network 1, which preferably comprises the Internet, or to a line-switching network 1', which preferably comprises a
30 public telephone network (Public Switched Telephone Network, PSTN).

35 As has already been described above, voice and data are packaged into packets in the packet-switching network 1 and are sent to the network 1 using a destination address. When they have arrived at the destination

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address, the individual packets are assembled again according to their prescribed

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order and are output on a subscriber (not shown). By contrast, in the line-switching network 1', a direct connection is set up between the respective subscribers, and the information is transferred in the
5 form of voice or data.

The Internet telephone adapter ITA essentially comprises a base unit B which is connected to a subscriber access adapter VM via a standard data
10 interface V.24.

In the preferred exemplary embodiment shown in figure 1, the subscriber terminal TE comprises a cordless telephone for setting up an air interface LS based on
15 the ETSI standard DECT. Since such a subscriber terminal TE is able to transmit only voice, the air interface LS is based on the DECT-GAP standard. At the opposite end, the air interface LS shown in figure 1 is set up by a base station which acts as a base unit B
20 and preferably corresponds essentially to the cordless GIGASET M101 data terminal from Siemens. Such a base unit essentially comprises an air interface unit LE for setting up the air interface LS, a data interface unit SS for setting up the standard data interface V.24, and
25 a control unit SE which controls both the air interface unit LE and the data interface unit SS. Preferably, the standard data interface V.24 used is a serial interface based on ITU-V.24 standard. It is also possible to use any other interface, however, such as parallel
30 interfaces, USB, fire wire, etc.

On the standard data interface V.24, the subscriber access adapter VM is connected in order to set up a connection to the service provider 2 (SP). Preferably,
35 the subscriber access adapter VM comprises an "analog voice modem", which permits the transfer of information both

in a data format using a modem M or in a voice format using a digital/analog converter unit V (voice). In this context, the respective transfer is selected by means of a selection unit AE, which can preferably be
5 programmed with the aid of standardized AT-Hayes commands using the standard data interface V.24.

To set up an "Internet voice/data link", it is necessary for a multiplicity of functions, preferably
10 performed by the control unit SE, to be implemented in the base unit B. Particularly when the data terminal GIGASET M101 is used, the inventive Internet telephone adapter ITA can be produced by slightly modifying (software, firmware) the base unit B and using a
15 conventional voice modem VM. In this context, the control unit SE in the base unit B needs to implement a dialing evaluation unit which makes it possible to distinguish a normal voice/data link, i.e. a link over the line-switching network 1', from an Internet
20 voice/data link, i.e. a link over the packet-switching network 1. For this purpose, a number plan is designed, for example, which makes it possible to make this distinction using currently available dialing digits (such as 0 to 9, *, #).

25

In the case of an Internet voice/data link initiated with "#", for example, a selection to be produced by the base unit B comprises the IP address (IP, Internet protocol) of the required call party. In this case, the
30 base unit B also uses the standard data interface V.24 to select a modem mode on the voice modem, as a result of which the information is sent in the data format via the modem M to the service provider 2 with the IP address produced.

35

If, on the other hand, a normal voice/data link is to be set up (e.g. a normal telephone number is dialed without

"#" in front), then the base unit B needs to actuate the selection unit AE in the voice modem VM such that the converter unit V is selected and the voice data are forwarded transparently, as it were, to the service
5 provider 2. Since there is no IP address in this case, the service provider 2 would set up the link over the network 1'.

10 In another case (not shown), the air interface LS can also be used to connect a data subscriber terminal which transmits exclusively data. These data are in turn transmitted by the voice modem VM using the modem M, but with no IP address being added. The IP address can now be used by the service provider 2 to establish
15 whether transmission is to be produced using the packet-switching network 1, i.e. over the Internet, or a conventional connection over the line-switching network 1'.

20 To set up an Internet voice/data link, however, it is not yet sufficient to add an IP address on the basis of the evaluated dialing digits from the subscriber terminal TE. Instead, the base unit B needs to set up data conversion between the air interface LS and the
25 protocol required for the packet-switching network 1.

Figure 2 shows a schematic illustration of a protocol structure for the Internet telephone system shown in figure 1. Figure 2 describes the protocol structure for
30 the preferred exemplary embodiment comprising a DECT-GAP mobile part or subscriber terminal TE and an AT-Hayes voice modem VM connected via a serial V.24 interface. Accordingly, a DECT-GAP protocol is used between subscriber terminal TE and base unit B on the
35 air interface LS. The control unit SE in the base unit B implements a data conversion unit IWU (interworking unit) whose task is to connect

the different protocol domains to one another. More precisely, the data conversion unit IWU in the base unit B monitors connection setup on the air interface side using its associated DECT-GAP protocol, with setup of a connection being accepted and the dialing which comes from the cordless subscriber terminal TE, i.e. the dialing digits 0 to 9, *, #, etc., being evaluated. When an Internet voice/data link is identified (e.g. "#" in front), the base unit B switches the voice modem VM to modem mode, and the modem M is prompted to dial up the service provider 2. Once the connection has been set up, the data sent by the air interface LS are converted on the basis of the Voice-Over-IP protocol and are sent, protected by means of TCP/IP data protection (transfer control protocol/Internet protocol), to the IP address obtained in the dialing.

Particularly when the subscriber access adapter VM comprises a voice modem, it is possible to set up not only the Internet/data link but also a normal voice/data link over the line-switching network 1'. In this case, for example when the dialing digit "#" is not included, the Internet protocols (TCP/IP, Voice-Over-IP protocol) are avoided by the data conversion unit IWU and the number, or dialing digits, received from the cordless subscriber terminal TE are forwarded to the voice modem VM using AT-Hayes commands, for example, in order to prompt the voice modem VM to dial this number. In this case, the information sent by the subscriber terminal TE is forwarded as voice data by the service provider 2 over the line-switching network 1'.

In order, on the other hand, to be able to receive an incoming internal voice/data link, the Internet telephone adapter ITA naturally needs to be "online". For this purpose, the service provider 2 can provide certain services which allow not only dialing into the

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Internet or packet-switching network 1, but also
calling from the packet-switching network 1.

In this way, the subscriber terminal TE can also constantly be reached via an Internet/data link.

The Internet telephone adapter described above has been
5 described with reference to figures 1 and 2 using a
cordless subscriber terminal and an analog subscriber
access adapter. It is not limited to these, however,
but rather comprises any other subscriber terminal
interfaces for connecting subscriber terminals, such as
10 data terminals, corded telephones, etc. In this
context, the air interface used is preferably a DECT
interface based on the ETSI standard; however, it is
also possible to use, by way of example, the PHS air
interface customary in Japan or the generally known
15 "Bluetooth" air interface.

Alternatively, instead of the analog subscriber access
adapter (voice modem), it is also possible to use a
digital subscriber access adapter, such as an ISDN-TA,
20 etc. In figure 1, the Internet telephone adapter
comprises a base unit B and a subscriber access adapter
VM which is of discrete design. The subscriber access
adapter can also be incorporated directly in the base
unit B, however. Preferably, the base unit B used can
25 be the GIGASET M101 data terminal. However, it is also
possible to use any other base unit which allows data
conversion between the respective protocol domains as a
result of an additional modification.

Patent Claims

1. An Internet telephone adapter for setting up voice/data link in line-switching networks (1) and packet-switching networks (1') having
5 a base unit (B) for setting up a subscriber terminal interface (LS) and a standard data interface (V.24); and
a subscriber access adapter (VM) for connecting the
10 base unit (B) to a service provider (SP) for line-switching networks and packet-switching networks (1, 1'),
characterized in that the base unit (B) has a transfer method evaluation unit (SE; IWU) which, on the basis of
15 the type of voice/data link identified, performs data conversion between the data on the subscriber terminal interface (LS) and the packet-switching network (1) or the line-switching network (1').
- 20 2. The Internet telephone adapter as claimed in patent claim 1,
characterized in that the subscriber terminal interface (LS) is an air interface, and the standard data interface (V.24) is a serial interface.
- 25 3. The Internet telephone adapter as claimed in patent claim 2,
characterized in that the air interface (LS) is a DECT or GSM interface standardized on the basis of ETSI, and
30 the serial interface (V.24) is a V.24 or USB interface standardized on the basis of ITU.
4. The Internet telephone adapter as claimed in patent claim 2,
35 characterized in that the air interface (LS) is a Bluetooth interface or PHS interface.

5. The Internet telephone adapter as claimed in one of patent claims 1 to 4, characterized in that the subscriber access adapter (VM) has an analog voice modem or a digital ISDN adapter.

6. The Internet telephone adapter as claimed in patent claim 5, characterized in that the subscriber access adapter (VM) has a selection unit (AE) for selecting data transfer in a data format (M) or a voice format (V).

7. The Internet telephone adapter as claimed in one of patent claims 1 to 6, characterized in that, for an outgoing call, the base unit (B) actuates the subscriber access adapter (VM), and for an incoming call, the subscriber access adapter (VM) actuates the base unit (B) for the type of voice/data link.

8. The Internet telephone adapter as claimed in one of claims 1 to 7, characterized in that the base unit (B) produces an IP address for a required call party when a voice/data link is identified for a packet-switching network (1).

9. The Internet telephone adapter as claimed in one of patent claims 1 to 8, characterized in that the data conversion in the transfer method evaluation unit (SE, IWU) for the packet-switching network (1) comprises TCP/IP data protection.

10. The Internet telephone adapter as claimed in one of patent claims 1 to 9,

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characterized in that the data conversion in the transfer method evaluation unit (SE; IWU) for the packet-switching network (1) comprises a Voice-Over-IP protocol.

5

11. The Internet telephone adapter as claimed in one of patent claims 2 to 10, characterized in that a standardized cordless subscriber terminal (TE) can be registered on the base unit (B).

10

12. The Internet telephone adapter as claimed in one of patent claims 1 to 7, characterized in that, when a voice/data link is identified for a line-switching network (1'), the base unit (B) actuates the subscriber access adapter (VM) such that the service provider (SP) connected thereto selects the line-switching network (1') for a voice/data link.

15

20

13. The Internet telephone adapter as claimed in one of patent claims 1 to 12, characterized in that the subscriber access adapter (VM) is incorporated in the base unit (B).

$$\frac{d}{dt} \left(\frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}, \quad \frac{d}{dt} \left(\frac{\partial L}{\partial \dot{y}} \right) = \frac{\partial L}{\partial y}, \quad \frac{d}{dt} \left(\frac{\partial L}{\partial \dot{z}} \right) = \frac{\partial L}{\partial z}$$

Internet telephone adapter

Figure 2

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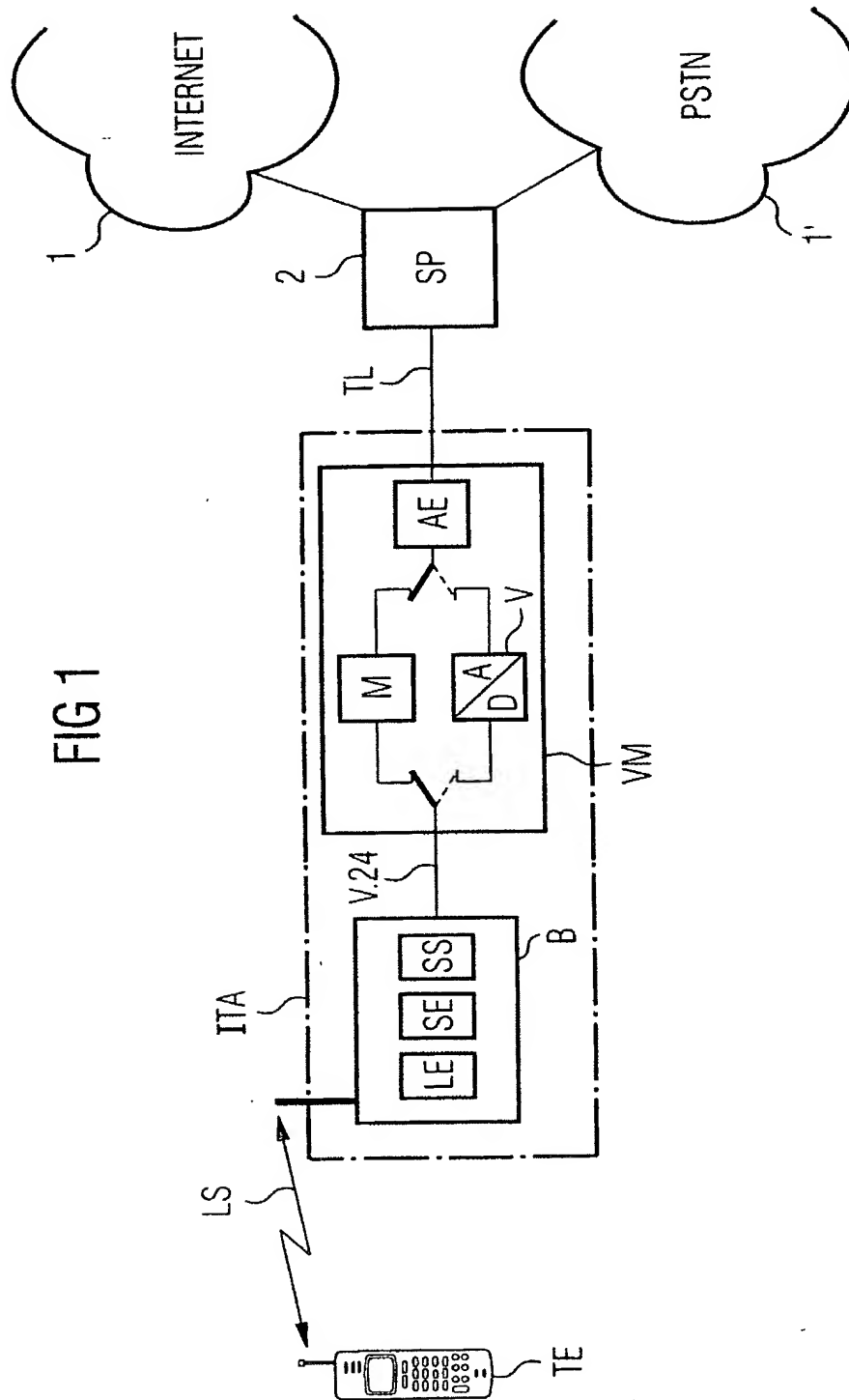
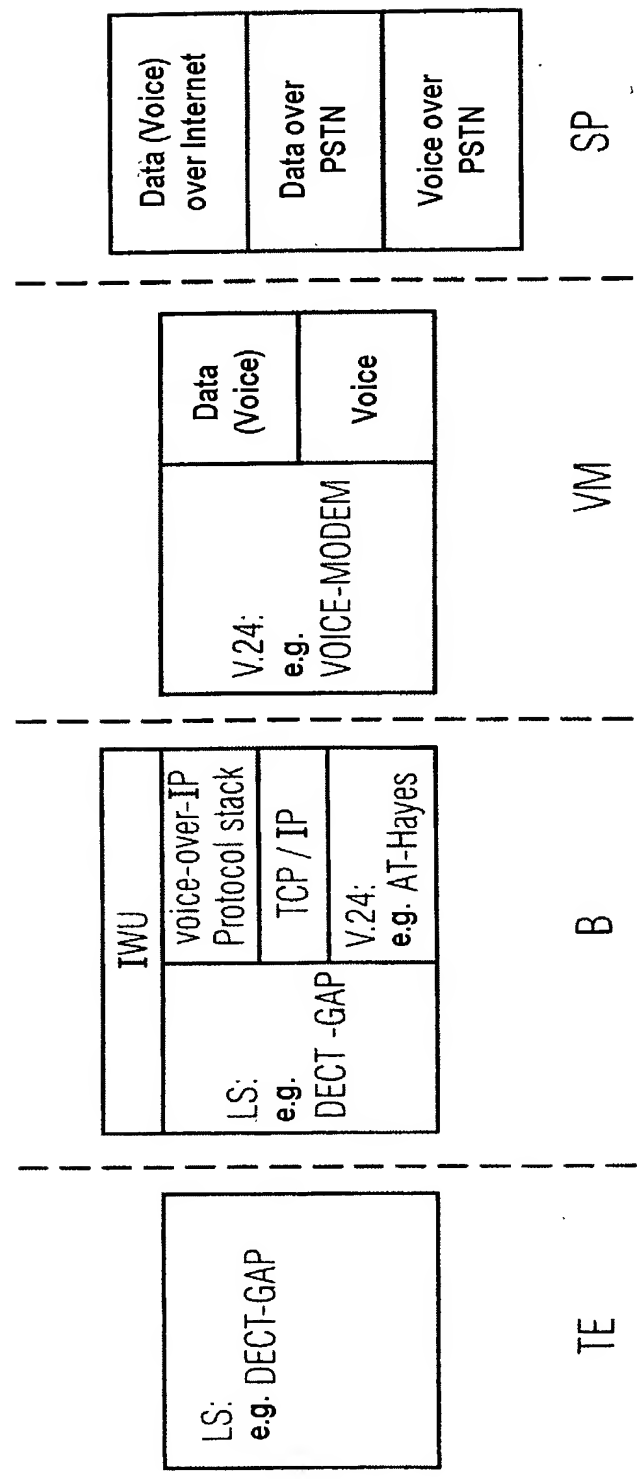


FIG 1

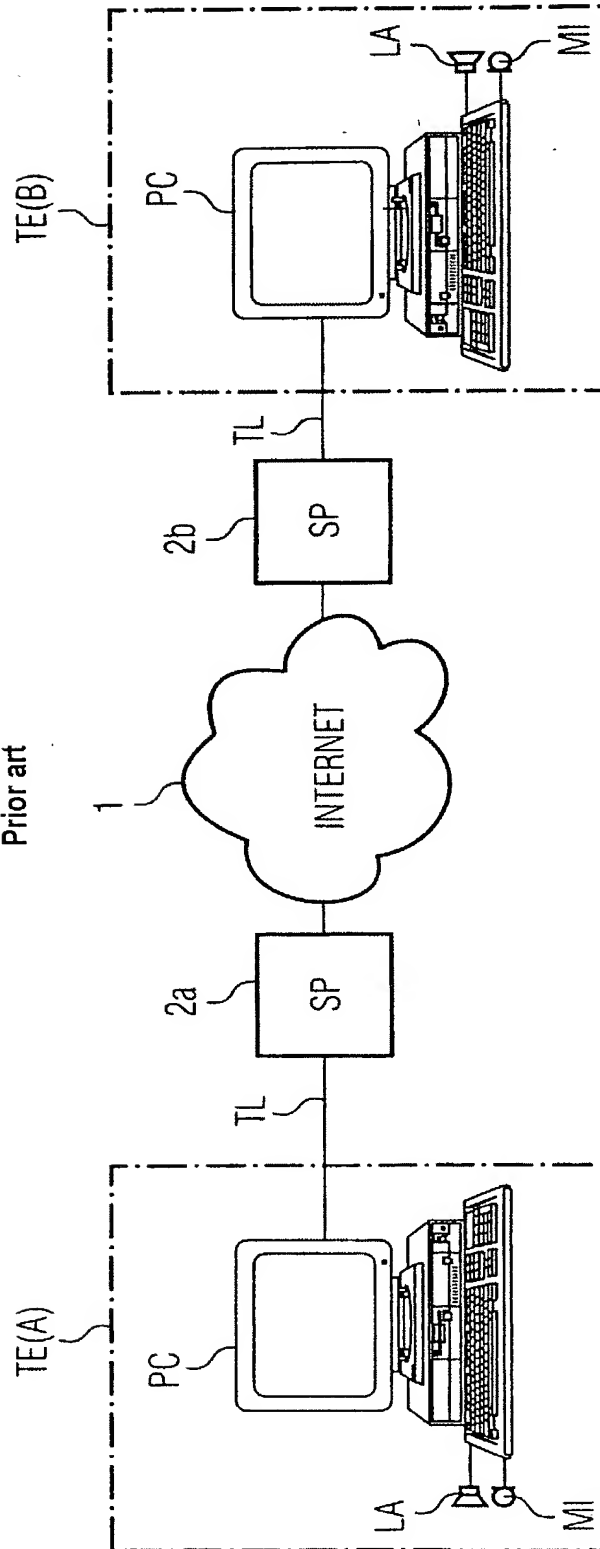
FIG 2



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FIG 3

Prior art



Erklärung Für Patentanmeldungen Mit Vollmacht

DNR: 2590 / V: 99-1.00 / B:Val

German Language Declaration

Prior foreign applications
Priorität beansprucht

Priority Claimed

19945663.1
(Number)
(Nummer)

DE
(Country)
(Land)

23.09.1999
(Day Month Year Filed)
(Tag Monat Jahr eingereicht)

☒ ☐
Yes No
Ja Nein

(Number) (Country)
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Yes No
Ja Nein

(Number) (Country)
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Yes No
Ja Nein

Ich beanspruche hiermit gemäss Absatz 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind

I hereby claim the benefit under Title 35 United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §122, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application

PCT/DE00/03259
(Application Serial No.)
(Anmeldeseriennummer)

19.09.2000
(Filing Date D, M, Y)
(Anmeldedatum T, M, J)

anhängig
(Status)
(patentiert, anhängig,
aufgegeben)

pending
(Status)
(patented, pending,
abandoned)

(Application Serial No.)
(Anmeldeseriennummer)

(Filing Date D,M,Y)
(Anmeldedatum T, M, J)

(Status)
(patentiert, anhängig,
aufgeben)

(Status)
(patented, pending,
abandoned)

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